SURVEY METHOD FOR IODINE DEFICIENCY DISORDERS

1. Background

1.1 Iodine Deficiency Disorders

Iodine Deficiency Disorders -IDD- is a general term used to describe the wide spectrum of disorders of mental and physical disabilities resulting from a deficiency of iodine. The best known effect is that of goitre but it is known now that iodine deficiency causes a range of effects on growth and development particularly brain development in the foetus and child, with the most severe form being cretinism.

Normally the iodine required by the body comes from food and water. When there is a deficiency of iodine in the soil there will be a deficiency of iodine in plamts and animals.

The prevention of IDD can be achieved quite easily by the provision of iodine in the diet, usually by providing iodised salt or by giving iodine in the form of capsules or injections.

1.2 Consequences of IDD

Deficiency of iodine has its most severe effects on growing children, particularly on the development of the brain in the foetus, noenate and child. The spectrum of disorders produced is shown in Table 1, page 2.

Iodine is an essential component of thyroid hormone which is produced in the thyroid gland. When there is a deficiency of iodine in the body, the thyroid gland cannot produce enough thyroid hormone. The first response of the body is to stimulate the thyroid gland to make more hormone, this stimulation results in the thyroid gland becoming enlarged, that is, it results in a goitre.

3 IDD in Pakistan

Iodine deficiency disorders are common in mountainous areas because the iodine is leached from the soil. Along the Himalayas there is a very high prevalence of IDD. In Pakistan the Northern Areas are severely affected, however Azad Kashmir and the northern districts of NWFP, notably Chitral, Kohistan and Mansehra are also known to particularly affected. Goitre has been reported from all provinces of Pakistan and probably all districts of NWFP are affected to varying degrees.

1.4 IDD in Afghanistan

Goitre is common along the northern and southern slopes of the Hindukush mountains and along the banks of the Amu Darya along the northern border of Afghanistan. However there is limited knowledge about the geographical extent of IDD and it is likely that many areas of Afghanistan are affected.

Table 1

The Spectrum of Iodine Deficiency Disorders

Foetus	Abortions Stillbirths Congenital anomalies Increased perinatal mortality Increased infant mortality Neurological cretinism - mental deficiency deaf-mutism spastic diplegia squint Myxoedamatous cretinism - dwarfism mental deficiency Psychomotor defects Foetal hypothyroidism
Neonate	Neonatal hypothyroidism Neonatal goitre
Child and Adolescent	Goitre Juvenile hypothyroidism Impaired mental function Retarded physical development
Adult	Goitre with its complications Hypothyroidism Impaired mental function

Source: Hetzel and Maberly, 1985

1.5 IDD in Refugee Villages in Pakistan

Afghan refugees living in iodine deficient areas in Pakistan will be at risk of developing iodine deficiency disorders, in addition refugees who have come from iodine deficient areas in Afghanistan, such as Baghlan, Takhar, Kunduz and Badakshan would have been at risk in the past and may have developed a goitre or other manifestations of iodine deficiency disorders.

In Chitral rates for goitre vary from valley to valley but range from 26% to over 50% and average more than 35%. In Koga R.V., Swat the rate for goitre was 49% in a large survey. Iodine deficiency control programmes have been implemented in these areas, either by giving iodine in the form of a lipiodol injection (Chitral) or by giving it as a capsule (Swat). For the long term prevention of IDD, iodised salt will be provided to the refugees.

2. Assessment of Iodine Deficiency Disorders for a community

2.1 Methods

For the refugee health programme the problem is to assess which populations are living in an area or region that is iodine deficient and if the iodine deficiency is of such a level that iodine supplementation is required. The methods used include;

- the goitre rate for the total population or for a sample of the population; particularly important is the rate in children under 15 years of age.
- the rates of cretinism in the population.
- urinary iodine excretion.
- the level of iodine in the drinking water.

Determining <u>the rate of goitre in schoolchildren</u> is one method that has been used extensively because of its convenience and the ease of access. Although within the refugee health programme this would mean usually only sampling male school children, an analysis of the Chitral data on goitre rates revealed no significant difference in the rate of goitre between male and female children aged 5 - 14 years.

2.2 Definition of Goitre Stages.

The definition of <u>goitre</u> is:

a thyroid gland whose lateral lobes have a volume greater than the terminal phalanges of the thumbs of the person examined will be considered goitrous.

In general visible goitre is more readily verified than the palpable goitre. A classification of goitre severity has been adopted by the World Health Organisation and is particularly useful in epidemiological surveys.

Stage 0. No goitre.

Stage 1a. Goitre detectable.

Stage 1B. Goitre palpable and visible only when the neck is fully extended.

Stage 2. Goitre visible with the neck in normal position; palpation is not needed for diagnosis.

Stage 3. Very large goitre that can be recognised at a considerable distance.

In case of doubt between any two of these stages, the lower should be recorded.

The total goitre rate is the prevalence of stages 1 + 2 + 3; the visible goitre rate is the prevalence of stages 2 + 3.

3. Goitre Survey in School Children.

3.1 Method

For the Afghan refugee programme it is proposed that the school children of refugee villages in NWFP be surveyed for goitre.

For each refugee village a list of the schools should be prepared including party schools and madrassars and the number of children in each school.

Initially the children attending the C.A.R. schools should be surveyed, that is each child should be examined for the presence of goitre. If the number of children attending CAR schools is a reasonable percentage (>20%) of the total number of school children for the refugee village then examining them alone may be sufficient, however the greater the number of children examined, the more reliable the results will be. So if possible other school children should be examined.

The medical officer should explain to the school teacher in advance the reason for the survey and obtain the permission of the teacher.

The technique to assess whether goitre is present is to stand or preferably sit in front of the child and observe the child's neck. If a goitre is readily visible then it should be recorded as stage 2 or 3 and the next child should be examined. If no goitre is visible then the child's neck should be extended fully. It is helpful in seeing a small goitre to ask the child to swallow. If a goitre is visible it is recorded as stage 1. If no goitre is visible then the examiner should stand behind the child and examine the neck by placing both hands on the lower front part of the neck and asking the child to swallow. An enlarged thyroid can be felt as it moves up and down with the act of swallowing. If the lateral lobe of the thyroid gland is larger than the terminal phalanx of the child's thumb then goitre stage 1 can be recorded. If no goitre is palpable then stage 0 should be recorded.

For each school, a school summary sheet should be completed and for each refugee village a separate summary sheet completed. Refer annex.

The F.S.M.O will forward the results to the Project Director Health who in conjunction with UNHCR and relevant national authorities will decide what action will be taken.

GOITRE SURVEY

Refugee Village Summary Sheet

Refugee Village.................... Basic Health Unit........................

District......................... Medical officer ;name....................

Date of survey.................... signature....................

School	Total number of children	Grade 0		Grade 1		Grade 2		Grade 3		Grades 1 + 2 + 3			
		M	F	M	F	M	F	M	F	M	F	Total	%
TOTAL													

GOITRE SURVEY

School Summary Sheet

School ....

Number of children attending ....

Refugee Village ....

District ....

Date ....

Examiner; name ....

signature.................

Comments..............................

Age	Total No. Of childrn	Grade 0		Grade 1		Grade 2		Grade 3		Grades 1 + 2 + 3			
		M	F	M	F	M	F	M	F	M	F	TOTAL	%*
5–9yrs													
10–14 yrs													
TOTAL													

$$* \; \% = \frac{\text{Total } 1 + 2 + 3}{\text{Total no. of children}} \times 100$$